

**REMARKS****I. General**

Claims 1-28 are pending, and all are rejected by the Office Action mailed February 8, 2006. Claim 1 is amended by this response. The issues in the Office Action are as follows:

- Claim 20 is potentially objected to.
- Claims 1, 11, 20, and 24-28 are rejected under 35 U.S.C. §102(b) as being anticipated by US 4,799,770 (hereinafter, *Kahn*). Please note that this reference is different from the *Kahn* reference of previous rejections.
- Claims 13, 14, and 16 are rejected under 35 U.S.C. §102(b) as being anticipated by US 4,723,835 (hereinafter, *Franklin*).
- Claims 1-10 and 20-22 are rejected under 35 U.S.C. §103(a) as being obvious over *Franklin* in view of US 4,692,779 (hereinafter, *Ando*).
- Claims 15 and 23 are rejected under 35 U.S.C. §103(a) as being obvious over *Franklin* in view of *Ando* in further view of US 4,603,946 (hereinafter, *Kato*).
- Claims 17-19 are rejected under 35 U.S.C. §103(a) as being obvious over *Kahn* in view of *Franklin* in further of *Kato*.
- Claims 12 is rejected under 35 U.S.C. §103(a) as being obvious over *Franklin* in view of *Ando* in further view of US 6,130,731 (hereinafter, *Andersson*).
- Claims 12 is rejected under 35 U.S.C. §103(a) as being obvious over *Kahn* in view of *Andersson*.
- Claim 24 is rejected under 35 U.S.C. §103(a) as being obvious over *Franklin* in view of US 3,963,310 (hereinafter, *Giallozenri*).

Applicant hereby traverses the current rejections, and requests reconsideration and withdrawal in light of the remarks contained herein.

## **II. Amendments to the Claims**

Claim 1 is amended to recite, in part, a first and second of contacts and “wherein the first electrode conducts current between said first set of contacts to heat the polarizer, and wherein the second electrode conducts current between said second set of contacts to heat the polarizer.” Support may be found at least at Figure 3 and the paragraph beginning at page 8, line 1. Thus, no new matter is added.

## **III. Claim Objections**

Claim 20 is potentially objected to as being a substantial duplicate of claim 1. Applicant notes that claim 20 is not a substantial duplicate of claim 1, as it contains limitations that are not found in claim 1. For instance, compare “wherein the first and second electrodes conduct current to heat the polarizer,” a feature recited by claim original and unamended 1 to “wherein said set of electrodes are operable to control polarization states of said layer of liquid crystal and are operable to conduct sufficient current to control a temperature of said layer of liquid crystal,” a feature recited by claim 20. At least two differences exist. First, the original claim 1 feature is not limited to “said set of electrodes are operable to control polarization states of said layer of liquid crystal,” as is the claim 24 feature. Second, the original claim 1 feature is not limited to “operable to conduct sufficient current to control a temperature of said layer of liquid crystal,” as is the claim 20 feature. Thus, claim 20 is not a substantial duplicate of original claim 1. Further, claim 1 is amended by this response, and it is believed that amended claim 1 is not a substantial duplicate of claim 20. Accordingly, Applicant respectfully requests that the objection be either withdrawn or not made, as the case may be.

**IV. Rejections under 35 U.S.C. §102(b)****A. Rejections over *Kahn***

Claims 1, 11, 20, and 24-28 are rejected under 35 U.S.C. §102(b) as being anticipated by *Kahn*. Applicant traverses the rejection.

It is well settled that to anticipate a claim, the reference must teach every element of the claim, see M.P.E.P. §2131. Moreover, in order for a prior art reference to be anticipatory under 35 U.S.C. § 102 with respect to a claim, “[t]he elements must be arranged as required by the claim,” see M.P.E.P. § 2131, citing *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Furthermore, in order for a prior art reference to be anticipatory under 35 U.S.C. § 102 with respect to a claim, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim,” see M.P.E.P. § 2131, citing *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913 (Fed. Cir. 1989). Applicant respectfully asserts that the rejection does not satisfy these requirements.

Claim 1 defines a switchable polarizer that has a layer of liquid crystal material positioned between the first and second electrodes. *Kahn* does not disclose at least this limitation. The Office Action cites busbars 35-1 and 35-2 of figure 3 to teach the first and second electrodes. However, the cited busbars do not teach the claim electrodes because there is not a layer of liquid material positioned therebetween. Note that figure 2 is a cross-sectional view of the layers of a liquid crystal cell, and that layer 20 is the liquid crystal material, and that layer 26 is a separate and reflective layer in the cell. See also Col. 3, line 62 through Col. 4, line 14. Note also that busbars 35-1 and 35-2 are part of reflective layer 26—a layer separate from liquid crystal layer 20. Col. 5, line 36 through Col. 6, line 7. In fact, figure 3 is a sectional view of the cell taken along line 3-3 of figure 2, thereby depicting busbars in a layer above the liquid crystal layer. In other words, the busbars are parallel line segments that are coplanar in a plane separate from the plane defined by layer 20. Accordingly, *Kahn* does not teach at least “a layer of liquid crystal material positioned between the first and second electrodes,” as recited by claim 1. Therefore, the Applicant respectfully asserts that for the above reasons claim 1 is patentable over the 35 U.S.C. § 102 rejection of record.

Claim 20 recites, in part, “a layer of liquid crystal material positioned between the two layers of the set of electrodes.” *Kahn* does not disclose at least this limitation. The Office Action cites busbars 35-1 and 35-2 of figure 3 to teach the two layers of the set of electrodes. However, the cited busbars do not teach the claim electrodes because there is not a layer of liquid material positioned therebetween. Note that figure 2 is a cross-sectional view of the layers of a liquid crystal cell, and that layer 20 is the liquid crystal material, and that layer 26 is a separate and reflective layer in the cell. See also Col. 3, line 62 through Col. 4, line 14. Note also that busbars 35-1 and 35-2 are part of reflective layer 26—a layer separate from liquid crystal layer 20. Col. 5, line 36 through Col. 6, line 7. In fact, figure 3 is a sectional view of the cell taken along line 3-3 of figure 2, thereby depicting busbars in a layer above the liquid crystal layer. In other words, the busbars are parallel line segments that are coplanar in a plane separate from the plane defined by layer 20. Accordingly, *Kahn* does not teach at least “a layer of liquid crystal material positioned between the two layers of the set of electrodes,” as recited by claim 20. Therefore, the Applicant respectfully asserts that for the above reasons claim 20 is patentable over the 35 U.S.C. § 102 rejection of record.

Claim 24 recites, in part, “wherein said set of electrodes is arranged in two layers surrounding said liquid crystal layer.” *Kahn* does not disclose at least this limitation. The Office Action cites busbars 35-1 and 35-2 of figure 3 to teach the two layers of the set of electrodes. However, the cited busbars do not teach the claim electrodes because they are not arranged in two layers surrounding the liquid crystal layer. Note that figure 2 is a cross-sectional view of the layers of a liquid crystal cell, and that layer 20 is the liquid crystal material, and that layer 26 is a separate and reflective layer in the cell. See also Col. 3, line 62 through Col. 4, line 14. Note also that busbars 35-1 and 35-2 are part of reflective layer 26—a layer separate from liquid crystal layer 20. Col. 5, line 36 through Col. 6, line 7. In fact, figure 3 is a sectional view of the cell taken along line 3-3 of figure 2, thereby depicting busbars in a layer above the liquid crystal layer. In other words, the busbars are parallel line segments that are coplanar in a plane separate from the plane defined by layer 20. Accordingly, *Kahn* does not teach at least “wherein said set of electrodes is arranged in two layers surrounding said liquid crystal layer,” as recited by claim 24. Therefore, the Applicant respectfully asserts that for the above reasons claim 24 is patentable over the 35 U.S.C. § 102 rejection of record.

Claims 11 and 25-28 depend from base claims 1 and 24, respectively, and thus inherit all limitations of their respective base claim. Each of claims 11 and 25-28 sets forth features and limitations not taught by *Kahn*. Thus, Applicant respectfully asserts that for the above reasons claims 11 and 25-28 are patentable over the 35 U.S.C. § 102 rejection of record.

**B. Rejections over *Franklin***

Claims 13, 14, and 16 are rejected under 35 U.S.C. §102(b) as being anticipated by *Franklin*. Applicant traverses the rejection.

Claim 13 recites, in part, “applying a first voltage signal to the first electrode and a second voltage signal to the second electrode during both the first and second driving modes.” *Franklin* does not teach at least this feature of claim 13 because the modes, as cited by the Office Action, do not both include applying a voltage signal to an electrode. The Office Action cites modes of *Franklin* as switch 31 open and switch 31 closed. See figures 2 and 3. *Franklin* teaches that switch 31 connects voltage source 30 to front and rear electrodes (13 and 17, respectively). Col. 4, lines 3-21. When switch 31 is open, there is no alternating potential between the front and rear electrodes, and when switch 31 is closed, the potential is applied to the electrodes. *Id.* Thus, during the switch open mode cited by the Office Action, there is no first or second voltage signal applied. Accordingly, *Franklin* does not teach at least the above-recited feature of claim 13. Therefore, the Applicant respectfully asserts that for the above reasons claim 13 is patentable over the 35 U.S.C. § 102 rejection of record.

Claims 14 and 16 depend from base claim 13, and thus inherit all limitations of claim 13. Each of claims 14 and 16 sets forth features and limitations not taught by *Franklin*. Thus, Applicant respectfully asserts that for the above reasons claims 14 and 16 are patentable over the 35 U.S.C. § 102 rejection of record.

Applicant further notes a technical mistake in the rejection. The rejection of claim 16 states, “The term “AC potential” or “AC voltage” defines an electric current that reverses direction sinusoidally and that has alternately positive and negative values. See [www.dictionary.reference.com](http://www.dictionary.reference.com), Source: WordNet 0 2.0, O 2003 Princeton University.” (The same statement appears elsewhere in the Office Action, as well.) However, Applicant notes

that an AC potential/voltage does not necessarily define an electric current. For example, an open circuit has no current, but a voltage difference may exist between two or more contacts. Further, Applicant could not access the cited definition. Should the Examiner persist in the definition, a copy of the reference is respectfully requested.

**V. Rejection under 35 U.S.C. §103(a)**

**A. Rejections over *Franklin* in view of *Ando***

Claims 1-10 and 20-22 are rejected under 35 U.S.C. §103(a) as being obvious over *Franklin* in view of *Ando*.

Amended claim 1 recites, in part, that the first electrode has a first set of contacts and that the second electrode has a second set of contacts, “wherein the first electrode conducts current between said first set of contacts to heat the polarizer, and wherein the second electrode conducts current between said second set of contacts to heat the polarizer.” *Franklin* does not teach or suggest at least this feature of claim 1. *Franklin* teaches that the current flows between the LCD electrodes (13 and 17 of figure 1) and the heater (19 of figure 1). Col. 5, lines 17-23 and Col. 2, lines 5-24. Thus, neither of electrodes 13 and 17 has a set of contacts wherein the electrode conducts current between the contacts, because the only current taught by *Franklin* flows from the electrodes to the heater. Accordingly, the above-recited feature of claim 1 is not taught or suggested by *Franklin*, nor does *Ando* teach or suggest the feature. Therefore, Applicant respectfully asserts that for the above reasons claim 1 is patentable over the 35 U.S.C. § 103 rejection of record.

Claim 20 recites, in part, “wherein said set of electrodes ... are operable to conduct sufficient current to control a temperature of said layer of liquid crystal.” *Franklin* does not teach or suggest this feature of claim 20 because *Franklin* teaches striving for zero current. The Office Action cites current in the *Franklin* system between the LCD electrodes and the heater to teach or suggest the above-recited feature of claim 20; however, such assertion is incorrect. *Franklin* teaches that the DC component (i.e., the cited current) between the LCD electrodes should be as close to zero as possible to avoid damaging the LCD from electroplating. Col. 5, lines 1-23. In fact, one of the advantages of the *Franklin* system is

that it can limit the current to as low as 250 nA or less. Col. 7, lines 53-58. *Franklin* does not teach or suggest that the amount of the current is sufficient current to control a temperature of a layer of liquid crystal. Accordingly, the above-recited feature of claim 20 is not taught or suggested by *Franklin*. The Office Action does not rely on *Ando* to teach or suggest the feature, nor does *Ando* teach or suggest the feature. Therefore, Applicant respectfully asserts that for the above reasons claim 20 is patentable over the 35 U.S.C. § 103 rejection of record.

Claims 2-9, 21, and 22 depend from base claims 1 and 20, respectively, and thus inherit all limitations of their respective base claim. Each of claims 2-9, 21, and 22 sets forth features and limitations not taught or suggested by *Franklin*. Thus, Applicant respectfully asserts that for the above reasons claims 2-9, 21, and 22 are patentable over the 35 U.S.C. § 103 rejection of record.

**B. Rejections over *Franklin* in view of *Ando* in further view of *Kato*.**

Claims 15 and 23 are rejected under 35 U.S.C. §103(a) as being obvious over *Franklin* in view of *Ando* in further view of *Kato*.

To establish obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations. See M.P.E.P. §2143. Without conceding the first and second criteria, Applicants assert that the rejection does not satisfy the third criterion.

Claims 15 and 23 depend from base claims 13 and 20, respectively, and thus inherit all limitations of their respective base claims. As shown above, *Franklin* does not teach every feature of base claim 13, and the combination of *Franklin* and *Ando* does not teach or suggest every feature of base claim 20. The Office Action does not rely on *Ando* or *Kato* to teach or suggest the features that were shown to be missing from *Franklin*. Thus, the combination of *Franklin*, *Ando*, and *Kato* does not teach or suggest all features of claims 15

and 23. Thus, Applicant respectfully asserts that for the above reasons claims 15 and 23 are patentable over the 35 U.S.C. § 103(a) rejection of record.

**C. Rejections over *Kahn* in view of *Franklin* in further view of *Kato***

Claims 17-19 are rejected under 35 U.S.C. §103(a) as being obvious over *Kahn* in view of *Franklin* in further of *Kato*. Applicant traverses the rejection.

To establish obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations. See M.P.E.P. §2143. Without conceding the second criterion, Applicant asserts that the rejection does not satisfy the first and third criteria.

**1. Lack of motivation to modify references**

The Office Action fails to provide the requisite motivation to combine *Kahn* with *Franklin* (and by extension, with *Kato* also). It is well settled that the fact that references can be combined or modified is not sufficient to establish a *prima facie* case of obviousness, M.P.E.P. § 2143.01. On page 13 of the Office Action, the Examiner states:

The current path provided by the fixed potential connected to the heater is principally through the rear LCD electrodes and therefore the alternating currents across the rear electrode capacitor and the front electrode capacitor flowing through the fixed potential connection are different. This creates an imbalance with respect to the capacitance between the front and the rear LCD electrodes resulting in a net DC current flow, see col. 2, lines 48-56. Thus, there are two current sources, each which connects to each one of electrodes.

Office Action at 13. In other words, the statement asserts that the DC current from the LCD electrodes to the heater teaches or suggests two current sources.

The Office Action further states that the motivation to combine *Franklin* and *Kahn* is as follows:



It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to implement two current sources as conventionally disclosed by *Franklin* in the LCD device of *Kahn* in order to achieve the benefit of intend to drive the LCD device, because one of ordinary skill in the art would be reasonably apprised of this would supply current values for electrodes of LCD device

Id. In arguing this, the Office Action fails to suggest the desirability for such a modification because *Franklin* teaches that the cited DC current between the LCD electrodes and the heater should be as close to zero as possible. *Franklin* at Col. 5, lines 1-23. This is because the current can damage an LCD device through electroplating, which is undesirable. Id. at Col. 2, lines 17-26. Accordingly, modifying the system of *Kahn* to include the DC current of *Franklin* would produce a failure in the resultant display device. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combinations, M.P.E.P. § 2143.01 citing *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). In this case, the cited art does not provide the requisite motivation, and in fact, teaches against the modification.

Further, a proposed modification that would render the prior art system unsatisfactory for its intended purpose lack suggestion or motivation, and is therefore, improper. M.P.E.P. § 2143.01(v). In this case, the proposed modification would ruin the LCD device of *Kahn* by causing electroplating. Thus, the failure to provide motivation suggesting desirability of the modifications is improper. Accordingly, Applicant respectfully submits that the 35 U.S.C. § 103(a) rejection of claims 17-19 fails.

## 2. Failure to teach or suggest all claim limitations

Claim 17 recites, in part, “a layer of liquid crystal material positioned between the first and second electrodes,” The combination of *Kahn*, *Franklin*, and *Kato* fails to teach or suggest at least this feature of claim 17. The Office Action does not rely on *Franklin* or *Kato* to teach or suggest the feature. Rather, the Office Action cites *Kahn*, specifically the busbars (35-1 and 35-2 of figure 3) to teach the claimed electrodes and liquid crystal layer (20 of figures 2 and 3) to teach or suggest the layer of liquid crystal material. However, the cited busbars do not teach the claim electrodes because there is not a layer of liquid material positioned therebetween. Note that figure 2 is a cross-sectional view of the layers of a liquid

crystal cell, and that layer 20 is the liquid crystal material, and that layer 26 is a separate and reflective layer in the cell. See also Col. 3, line 62 through Col. 4, line 14. Note also that busbars 35-1 and 35-2 are part of reflective layer 26—a layer separate from liquid crystal layer 20. Col. 5, line 36 through Col. 6, line 7. In fact, figure 3 is a sectional view of the cell taken along line 3-3 of figure 2, thereby depicting busbars in a layer above the liquid crystal layer. In other words, the busbars are parallel line segments that are coplanar in a plane separate from the plane defined by layer 20. Accordingly, the cited combination does not teach at least “a layer of liquid crystal material positioned between the first and second electrodes,” as recited by claim 17. Therefore, the Applicant respectfully asserts that for the above reasons claim 17 is patentable over the 35 U.S.C. § 103 rejection of record.

Claims 18 and 19 depend from base claim 17, and thus inherit all limitations of claim 17. Claim 17 sets forth features and limitations not recited by the combination of *Kahn*, *Franklin*, and *Kato*. Thus, the Applicants respectfully assert that for the above reasons claims 18 and 19 are patentable over the 35 U.S.C. § 103(a) rejection of record.

**D. Rejections over *Franklin* and *Ando* in further view of *Anderson* and over *Kahn* in view of *Anderson***

Claims 12 is rejected under 35 U.S.C. §103(a) as being obvious over *Franklin* in view of *Ando* in further view of *Andersson*. Claim 12 is further rejected as being obvious over *Kahn* in view of *Andersson*. Applicant traverses the rejections

Claim 12 depends from base claim 10, and thus inherits all limitations of claim 10. As shown above, the combination of *Franklin* and *Ando* does not teach every feature of base claim 10. The Office Action does not rely on *Andersson* to teach or suggest the features that were shown to be missing from *Franklin* and *Ando*. Thus, the combination of *Franklin*, *Ando*, and *Andersson* does not teach or suggest all features of claim 12.

Further, as shown above, *Kahn* does not teach every feature of claim 10. The Office Action does not rely on *Andersson* to teach or suggest the features that were shown to be missing from *Kahn*. Thus, the combination of *Franklin* and *Andersson* does not teach or

suggest all features of claim 12. Thus, Applicant respectfully asserts that for the above reasons claim 12 patentable over the 35 U.S.C. § 103(a) rejections of record.

**E. Rejection over *Franklin* in view of *Giallorenzi***

Claim 24 is rejected under 35 U.S.C. §103(a) as being obvious over *Franklin* in view of *Giallorenzi*. Applicant traverses the rejection.

**1. Lack of motivation to modify references**

The Office Action fails to provide the requisite motivation to combine *Franklin* with *Giallorenzi*. It is well settled that the fact that references can be combined or modified is not sufficient to establish a *prima facie* case of obviousness, M.P.E.P. § 2143.01. On page 16 of the Office Action, the Examiner proposes to modify the system of *Franklin* to include producing an electric field between the electrodes. The Office Action further states:

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to implement the electrical current produces an electric-field between the electrodes as taught by Giallozenri in the LCD device of *Franklin* in order to achieve the benefit of intend to drive the LCD device, because this would change the index of refraction and which causes the liquid-crystal molecules 23 to align with the electric field (see Giallozenri, col. 7, lines 47-49).

Office Action at 16. However, *Franklin* already provides a mechanism to produce an electric field between the electrodes (13 and 17 of figures 2 and 3). See the discussion in *Franklin* at column 4, lines 3-21. Accordingly, one of ordinary skill in the art would not be motivated to look to *Giallorenzi* to modify *Franklin* “in order to achieve the benefit of intend to drive the LCD device, because this would change the index of refraction and which causes the liquid-crystal molecules 23 to align with the electric field,” contrary to the Office Action’s assertions. In effect, the Office Action’s assertion is merely a statement that the references can be modified, and does not provide any real desirability for making the modifications. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combinations, M.P.E.P. § 2143.01 citing *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). Accordingly, Applicant respectfully submits that the 35 U.S.C. § 103(a) rejection of claim 24 fails.

2. Failure to teach or suggest all claim limitations

Claim 24 recites, in part, “driving a set of electrodes to cause current to flow through said set of electrodes to sufficiently heat a liquid crystal layer of said liquid crystal polarizer to control a temperature of said liquid crystal layer.” *Franklin* does not teach or suggest this feature of claim 24 because *Franklin* teaches striving for zero current. It is believed that the Office Action cites current in the *Franklin* system between the LCD electrodes and the heater to teach or suggest the above-recited feature of claim 24; however, such assertion is incorrect. *Franklin* teaches that the DC component (i.e., the cited current) between the LCD electrodes should be as close to zero as possible to avoid damaging the LCD from electroplating. *Franklin* at Col. 5, lines 1-23. In fact, one of the advantages of the *Franklin* system is that it can limit the current to as low as 250 nA or less. Col. 7, lines 53-58. *Franklin* does not teach or suggest that the amount of the current can sufficiently heat a liquid crystal layer ... to control a temperature of said liquid crystal layer. Accordingly, the above-recited feature of claim 24 is not taught or suggested by *Franklin*. The Office Action does not rely on *Giallorenzi* to teach or suggest the feature, nor does *Giallorenzi* teach or suggest the feature. Therefore, Applicant respectfully asserts that for the above reasons claim 24 is patentable over the 35 U.S.C. § 103 rejection of record.

**VI. Conclusion**

In view of the above statements, applicant believes the pending application is in condition for allowance.

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Applicant believes no fee is due with this response. However, if a fee is due, please charge Deposit Account No. 08-2025, under Order No. 10992292-1, from which the undersigned is authorized to draw.

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail, Airbill No. EV 482709925 US in an envelope addressed to: MS Amendment, Commissioner for Patents, Alexandria, VA 22313-1450.

Date of Deposit: April 7, 2006

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Respectfully submitted,

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